



October 11, 2022

State Building Code Council
Attention: Tony Doan, Chair
1500 Jefferson St SE
Olympia, WA 98504

Re: Group 2 - 2021 Washington State Energy Code – Residential

Dear State Building Code Councilors,

I am writing on behalf of a local home builder in the greater Spokane area. Greenstone Homes is a high-volume builder with typical starts averaging over 200 in a single year and has been building a product of net-zero ready homes for several years now, with the first dating back to 2017. We are an advocate of building science, building energy efficient homes, and maintaining high quality standards.

This letter is in opposition to several of the code amendments in the Group 2 – 2021 WSEC - Residential code change proposal.

Greenstone Homes is not opposed to all-electric residential buildings, nor are we opposed to homes with fossil fuels as their primary heating source. We are opposed to regulating the type of energy source available to new residential construction.

21-P2-065: Heat Pump Space Heating

The pros to an all-electric heat pump HVAC system are many, but I fear nobody is looking at the negative impact this can have on an economic level, or if they are, they are rushing past factual information to see the long term goals of an ideology come to life. I will list pros and cons of adopting this proposal, but my main concern is forcing this costly change at potentially the worst time when we're standing on recession's doorstep with one foot in the door.

Pros:

- 1) **Lower Operating Costs:** I have no personal data to confirm this, so I'm relying on the experts. All the homes we have built also include drastic changes to improve the envelope, so I cannot single out the all-electric heat pump as the sole factor in reducing operating costs. But our homes have seen lower utility bills with all factors included.



- 2) **Clean Energy:** There is no debate that utilizing electric energy versus fossil fuels is cleaner. And in the state of WA, this is true because of our hydro and wind production.

Cons:

- 1) **Higher Construction Costs:** Speaking from firsthand experience as a purchasing manager and a building science advocate, building a home with an all-electric heat pump system is more expensive than a traditional gas forced-air HVAC system. The costs vary, and we have implemented many other envelope improvements to keep BTU loads down, but for the HVAC system alone, we average \$2.24/sf more than a gas forced-air home. Our experience contradicts the information provided in the proposal. Below are costs from a year ago when we last built these floor plans with gas forced air systems.

Plan	Square Feet	Gas Forced-Air w/ A/C 6/23/2021	Heat Pump Ducted Mini-Split 6/23/2021	Delta \$	Delta %	Delta \$/SF
Astora	1366	\$10,160	\$13,552	\$3,392	33.4%	\$2.48
Hamilton	998	\$10,304	\$12,364	\$2,060	20.0%	\$2.06
Oak Harbor	1194	\$10,480	\$12,865	\$2,385	22.8%	\$2.00
Seaside	1366	\$9,730	\$13,539	\$3,809	39.1%	\$2.79
Sonoma	1194	\$10,434	\$12,865	\$2,431	23.3%	\$2.04
Victoria	1248	\$10,160	\$12,733	\$2,573	25.3%	\$2.06
Averages	1228	\$10,211	\$12,986	\$2,775	27.3%	\$2.24

- 2) **Inadvertently Omits Gas Cooking Appliances:** In the proposal, to keep construction costs down, it discusses omitting gas utilities on the lot. In doing so, you also omit cooking appliances that consumers favor. We have somewhere around 75% of buyers choose a gas cooking appliance.
- 3) **Gas Fireplaces:** In line with omitting gas cooking appliances, this also omits gas fireplaces. Somewhere around 90% of our buyers choose to have a fireplace.
- 4) **Climate Zone 5:** Has anyone taken into consideration the different climate zones within the state of Washington? Heat pump systems are not as effective in colder climates and effective equipment is limited. Ultimately, this results in higher cost for equipment. Evidence in the graph above.
- 5) **Maintenance / Limited Parts:** Ask any manufacturer, distributor, or contractor – the replacement parts for heat pump systems are not as universal as a typical gas forced-air furnace. This makes maintenance and repair a much longer process and costlier. This is one of the biggest concerns for contractors in this day and age. This will tap into operating costs.
- 6) **Burden on Utility Providers:** In current events, California has already requested consumers to turn off their A/C due to limited power from utility providers and rolling blackouts. Please don't look past the fact that going all-electric will drastically increase the burden on all utility providers. If this



proposal is adopted, it would be negligent to not address the increase in demand of electricity. And if the solution is to require PV on new residential construction, then construction costs are going up.

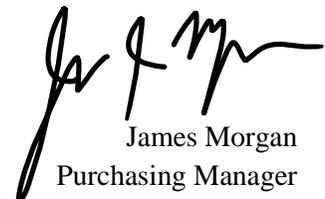
Regulating the use of all-electric heat pump HVAC systems has the potential to cause more detriment than benefit to our housing market and economic climate. Saving the planet and being energy conscious is already trending. Because of this, there is an interested demographic, and the free market will mold efficient building practices if you allow it. You will see more and more home builders adopting a healthy home marketing plan without the need to regulate all-electric heating systems. Regulation forces hands and creates animosity. It requires planning, implementation, training, and battling resistance from the people with their boots on the ground who don't fully understand it. Forced change amplifies this. A suggestion for a better approach would be having stricter regulations on educating contractors about their own trades and allowing them to have a choice. Let's educate, discuss, and offer possibilities. Let's not regulate change where it isn't needed.

21-GP2-066: Heat Pump Water Heating

Most of the bullet points outlined in the above section regarding heat pump HVAC systems also apply to the heat pump water heating. The major point I would like to reiterate is that climate zone 5 does not allow the heat pump water heaters to run as efficiently as they're intended. Greenstone knows this from experience. We used heat pump water heaters for years until the latest generations of the equipment stopped performing in our climate. Three to six months of the year (dependent on temperatures), the heat pump water heaters go into a high-demand mode because the energy-efficient heat pump mode cannot keep up with demand. One solution would be to put them in the home, but we have also experienced this, and the units dump too much cold air into the home, reducing comfort. In addition to not being as effective as intended in climate zone 5, the cost of these units has sky-rocketed due to high demand and limited supply. They are somewhere around 10% - 15% more in cost than a gas tankless unit.

I implore you to let the pioneering home builders take charge and blaze the path for these changes. I would be happy to discuss further and answer any questions you may have.

Regards,



James Morgan
Purchasing Manager
Greenstone Homes